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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/685,297	10/10/2000	Robert B. Cody	3487-001146	4559

7590 01/15/2002
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EXAMINER	
GORDON, BRIAN R	
ART UNIT	PAPER NUMBER
1743	2

DATE MAILED: 01/15/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

MF-2

Office Action Summary

Application No.

09/685,297

Applicant(s)

CODY, ROBERT B.

Examiner

Brian R. Gordon

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 10 October 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 October 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

DETAILED ACTION

Drawings

1. Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norman US 5,508,204.

Norman discloses a method of concurrent analysis of prepared multiple analyte specimens. Each specimen is introduced at an initial temperature to an analytical column. The analytical column is then heated to an intermediate temperature, which

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causes the first analyte specimen to enter into the column, followed by returning the analytical column to the initial temperature. The next analyte specimen is then introduced to the column, and the analytical column is again heated to the intermediate temperature. This causes the first analyte specimen to travel a short distance into the column, while at the same time causing the second analyte specimen to enter the column, so that they are spaced apart. Heating of the column is either then continued to reach the final temperature, or alternately the column is again cooled for introduction of a third analyte specimen. This sequence of introduction at an initial temperature, heating to an intermediate temperature, and cooling to the initial temperature is repeated until the desired multiplicity of analyte specimens have been loaded into the column, with each analyte specimen spaced in succession along an initial portion of the column. After loading of the last analyte specimen, the temperature is ramped to the final temperature, which is greater than the intermediate temperature. Any given component contained in the analyte specimens will elute at the same rate. Thus each given analyte component travels through the column in discrete spaced bands, with each band corresponding to the analyte specimen from which that quantity of the component originated. The analyte bands travel concurrently and discretely through the column, and sequentially elute from the column. The eluted compounds then flow into an ion trap detector, conventionally referred to as a mass spectrometer.

The invention also entails an automated system for introduction of the multiple specimens to the analyte column. One such system 10 in accordance with the present invention is shown in FIG. 7. System 10 includes a gas chromatograph 12 containing

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an analytical column 14. The injection chamber 16 of the gas chromatograph column is supplied with a carrier fluid, such as an inert gas, from a carrier fluid reservoir 18. The outlet 20 of the column 14 is coupled to a mass spectrometer 22. This autosampler, for example, has a 200 sample vial capacity and can be programmed to draw up a few microliters from a selected sample vial with a syringe, traverse the syringe to the injector of a gas chromatograph, inject the sample through a septum into the injection chamber 16 (maintained at about 250.degree. C.), and then rinse the syringe. The autosampler may be programmed in accordance with the present invention to sequentially sample and inject samples from a selected one of multiple sample reservoirs, designated in FIG. 7.

The operation of the autosampler 24 is controlled by a central processing unit 30. The central processing unit 30 can be housed within a stand-alone personal computer, or can be included as a dedicated processor integrated with the gas chromatogram 12 and the autosampler 24. The data system also controls the temperature cycling of the gas chromatograph to provide for sequential loading of the specimens within the column and the mass spectrometer for setting parameters and recording data.

Norman does not specifically recite that the specimens are homogenized or that the analysis steps are repeated for each combination of specimens.

However it would have been obvious to one of the ordinary skill in the art to recognize that the analysis steps would be repeated for each combination of samples in order to compare and obtain accurate measurements of the specimens.

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As to claims 3, 4 and 9, it would have been obvious to one of the ordinary skill to employ a carrier gas for it is well known in the art that carrier gases are used in such analysis systems as gas chromatography and mass spectroscopy. It is also obvious that the data system, central processing unit, is capable of performing mathematical deconvolution. It also would have been obvious to one of the ordinary skill to recognize that any number of specimens may be selected as so desired by the operator.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Norman as applied to claims 1-4 and 9 above, and further in view of Williams et al. US 4,978, 852.

Norman does not disclose that the central processing unit employs Hadamard transform as the form of deconvolution.

Williams et al. disclose the simultaneous collection of multiple spectra using tandem and multidimensional mass spectrometry from multiple precursors yields correspondingly enhanced sensitivity through Hadamard transform deconvolution.

It would have been obvious to one of the ordinary skill in the art to modify the teachings of Norman by employing the teachings to Williams in order to enhance the sensitivity of the measurements.

6. Claims 6-8 rejected under 35 U.S.C. 103(a) as being unpatentable over Norman as applied to claims 1-4 and 9 above, and further in view of Kassel et al US 6,066,848.

Norman does not specifically recite that the specimens directed to the analysis instrument through controlled valves.

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Kassel discloses a method of analyzing each of a plurality of fluid samples (11-16), comprising, simultaneously spraying a plurality fluid samples (11-16) from electrospray needle array (20) towards mass spectrometer (50); positioning blocking device (40) (valve) to block all but one (32-34) of fluid samples (31-34) from reaching mass spectrometer (50). The electrospray needle array and the mass spectrometer comprises a plurality of high speed valves or shutters, (with each valve or shutter being dedicated to a particular electrospray needle), which open and close one after another in sequence to permit each of the fluid samples to be electrosprayed into the mass spectrometer and analyzed in turn.

It would have been obvious to one of the ordinary skill in the art at the time of the invention to employ the use of the valves as taught by Kassel in order to control the admittance of specimens into the analyzer.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

McLafferty, Yates, III et al., Andresen et al., Federer et al., and Vestal disclose mass spectrometer systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian R. Gordon whose telephone number is (703) 305-0399. The examiner can normally be reached on M-F, with 2nd and 4th F off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 703-308-4037. The fax phone numbers for

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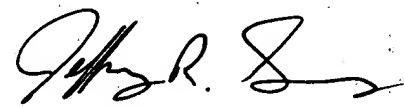
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the organization where this application or proceeding is assigned are (703) 305-7719 for regular communications and (703) 305-3014 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

brg
January 9, 2002


JEFFREY SNAY
PRIMARY EXAMINER